

ABSTRACT

Devices and methods for amplifying weak electric signals are described. The device of the invention includes an amplifier that is fully integrated in a standard CMOS process and is capable of rejecting large DC offsets while amplifying signals down to the sub-Hz range. This result is achieved by using single-transistor MOS "pseudo-resistor" elements to achieve a very low cutoff frequency in the mHz range or lower. When combined with an electrode array or other sensor array, the fully-integrated amplifier is suitable for recording biological and biopotential signals from the mHz range up to and including about 7kHz. The amplifier also rejects dc offsets at the input and offers a superior power-noise tradeoff than other amplifiers currently available.